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Abstract Title:

Utilization of data estimation via existing models, within a tiered data quality system, for populating species sensitivity distributions

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Abstract:

The acquisition toxicity test data of sufficient quality from open literature to fulfill taxonomic diversity requirements can be a limiting factor in the creation of new 304(a) Aquatic Life Criteria. The use of existing models (WebICE and ACE) that estimate acute and chronic effects endpoints at the species, genera, or family level for those taxa without test data can be used, in conjunction with empirical test data, to fill data gaps for potential regulatory use when combined in species sensitivity distributions (SSD). These SSDs can be used in a probabilistic fashion to identify ecosystem level protective values inclusive of inherent variability, as well as to illustrate potential magnitude of effects to species or genera at an intended level of protection (eg, the HC_{05}). For some limited cases, the paucity of biological effects data for certain taxonomic groups exposed to a pollutant serves as the limitation to defining protective values within a risk assessment framework. This procedure provides a method to remove those limitations so long as there is an acceptable means to address the uncertainty associated with a predicted effects threshold. We will provide examples of HC_{05} estimates generated using estimated effects endpoints and illustrate potential methods for evaluating the robustness of the fitted SSD and HC_{05} estimates. We will also show how sensitivity analyses can be used to understand the relative influence of the estimated effects endpoints on the resulting HC_{05} estimates.